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SIDDIQI, MOHAMMAD A	
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Please find below and/or attached an Office communication concerning this application or proceeding.

The time period for reply, if any, is set in the attached communication.

Notice of the Office communication was sent electronically on above-indicated "Notification Date" to the following e-mail address(es):

ADIPFDD@bipc.com

Office Action Summary	Application No.	Applicant(s)	
	10/646,831	CHO ET AL.	
	Examiner	Art Unit	
	MOHAMMAD A. SIDDIQI	2154	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE *3* MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

1)☒ Responsive to communication(s) filed on *18 July 2008*.

2a)☐ This action is **FINAL**. 2b)☒ This action is non-final.

3)☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

4)☒ Claim(s) *1-62* is/are pending in the application.

4a) Of the above claim(s) _____ is/are withdrawn from consideration.

5)☐ Claim(s) _____ is/are allowed.

6)☒ Claim(s) *1-62* is/are rejected.

7)☐ Claim(s) _____ is/are objected to.

8)☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

9)☐ The specification is objected to by the Examiner.

10)☐ The drawing(s) filed on _____ is/are: a)☐ accepted or b)☐ objected to by the Examiner.

Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).

Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).

11)☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

12)☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).

a)☐ All b)☐ Some * c)☐ None of:

1.☐ Certified copies of the priority documents have been received.

2.☐ Certified copies of the priority documents have been received in Application No. _____.

3.☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

1) ☐ Notice of References Cited (PTO-892)
2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
3) ☒ Information Disclosure Statement(s) (PTO/SB/08) Paper No(s)/Mail Date *07/18/2008*.
4) ☐ Interview Summary (PTO-413) Paper No(s)/Mail Date. _____ .
5) ☐ Notice of Informal Patent Application
6) ☐ Other: _____.

DETAILED ACTION

1. Claims 1-62 are presented for examination.

Continued Examination Under 37 CFR 1.114

2. A request for continued examination under 37 CFR 1.114, including the fee set forth in 37 CFR 1.17(e), was filed in this application after final rejection. Since this application is eligible for continued examination under 37 CFR 1.114, and the fee set forth in 37 CFR 1.17(e) has been timely paid, the finality of the previous Office action has been withdrawn pursuant to 37 CFR 1.114. Applicant's submission filed on 07/18/2008 has been entered.

Claim Rejections - 35 USC § 101

3. Independent claims 1-23 are rejected under 35 U.S.C. 101 because the claimed invention is directed to non-statutory subject matter. The language of the claims raises a question as to whether the claims are directed merely to an abstract idea that is not tied to a technological art, environment or machine which would result in a practical application producing a concrete, useful and tangible result. The multimedia streaming server (A server is the computer program that serves requested HTML pages or files by the client) and multimedia streaming client (a software program that is used to contact and obtain data from a Server software program) are computer programs (software per

se) performing various functionalities. These functionalities do not manipulate any hardware or tangible entity. Therefore, these software constructs are non statutory entities as detailed in MPEP 2106.

4. Claims 60-62 are rejected under 35 U.S.C. § 101 for being non statutory. Claims that recite nothing but the physical characteristics of a form of energy, such as a frequency, voltage, or the strength of a magnetic field, define energy or magnetism, per se, and as such are nonstatutory natural phenomena. Moreover, it does not appear that a claim reciting a signal encoded with functional descriptive material falls within any of the categories of patentable subject matter set forth in § 101. The term computer readable medium is defined In the latest amendment to the specification as a carrier wave. Examiner suggests to replace “computer readable medium” to “storage media” in the claims.

Claim Rejections - 35 USC § 103

5. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

> (a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negatived by the manner in which the invention was made.

6. Claims 7-18, 24-41, 46-58, 60, and 61, are rejected under 35 U.S.C. 103(a) as being unpatentable over Zhang et. Al. (2002/0010938) (hereinafter Zhang) in view of Lennon et. Al. (2002/0152267) (hereinafter Lennon).

7. As per claim 1, Zhang discloses a multimedia streaming apparatus comprising:

a multimedia streaming server (210, fig 2) which streams multimedia data corresponding to a predetermined quality of service (QoS) level (214, fig2, page 3, paragraph #0044) in response to a parsing result of metadata (meta data is interpreted as information about information, i.e. MSFTP-TCP friendly header, para #0049) corresponding to multimedia data intended to be provided for service (216, fig 2, para #0044, "**A Quality of Service (QoS) Adaptation and Global Resource Allocation Control module 214 adjusts the quality of the bit stream that is transmitted from server 210 to client 230 through Internet 220. Module 214 periodically estimates the available bandwidth from the MSTFP protocol as derived from module 212. Combining this information with the media characteristics of media streams Video.sub.m, Video.sub.n, and Audio.sub.k, module 214 adjusts the quality of the total transmitted streams by resource re-allocation in a Global Buffer Control module 216 at Server 210. Data occupying the global buffer is transmitted from Server 210 in the MSFTP protocol at module 212 through Internet"**) and network bandwidth information which is input form a client (page 3, paragraph #0042 -#0044); and

a multimedia streaming client (230, fig 2) which measures the bandwidth of a network to which the server is connected (232, fig 2; page 4, paragraph #0046; page 7, paragraph #0106-#0112) by using a time interval when multimedia data is received and information on the size of the multimedia data (elements of fig 2, page 4, paragraph #0046; page 7, paragraph #0106-#0126), and transmits the measured bandwidth information to the server (elements of fig 2, page 4, paragraph #0046; page 7, paragraph #0106-#0126).

Zhang explicitly does not teach wherein the metadata has multimedia data and streaming-related information. However, Lennon discloses wherein the metadata has multimedia data and streaming-related information (page 4, paragraph #0060). Zhang discloses an implementation of an end-end framework for media streaming over the Internet using Multimedia TCP-friendly protocol. Lennon facilitates access to multimedia content using metadata stored in the XML documents. Zhang explicitly does not teach use of XML, that allows information and services to be encoded with meaningful structure and semantics that computers and humans can understand. XML is great for information exchange, and can easily be extended to include user-specified and industry-specified tags and metadata. It would have been obvious to one having ordinary skill in the art at the time invention was made to implement an end-end framework for media streaming over the Internet taught by Zhang to incorporate the metadata and XML teachings of Lennon for efficiently using bandwidth.

8. As per claims 24 and 46, Zhang disclose a multimedia streaming server and method to be performed between a server and client that connected through network (210, fig 2), comprising: a data storage unit which stores multimedia data desired to be provided for service and metadata (meta data is interpreted as information about information, i.e. MSFTP-TCP friendly header, para #0049) related to the multimedia data (210,214 fig 2, pages 3-4, paragraph #0044-#0045);

a message receiving unit which receives network bandwidth information from a client connected to a network 214, fig 2, pages 3-4, paragraph #0044-#0045);

a quality of service (QoS) processing unit which selects a QoS level available for service in response to the descriptor information and the network bandwidth information (214, fig 2, pages 3-4, paragraph #0044-#0045), and extracts multimedia data corresponding to the selected QoS level, from the data storage unit (214, fig 2, pages 3-4, paragraph #0044-#0045);

a buffer which stores the extracted data 216, fig 2, pages 3-4, paragraph #0044-#0045);

a packet generation unit which packetizes the data stored in the buffer (210, fig 2, pages 3-4, paragraph #0044-#0045); and

a packet transmission unit which transmits the packet data to the client in each predetermined time interval (212, fig 2, pages 3-4, paragraph #0044-#0045),

wherein the metadata has a multimedia data and streaming –related information. Zhang fails to disclose a metadata parsing unit which parses the metadata and outputs the parsing result in the form of a descriptor. However, Lennon discloses a metadata

parsing unit which parses the metadata and outputs the parsing result in the form of a descriptor (pages 5-6, paragraph #0070-#0079). Zhang discloses an implementation of an end-end framework for media streaming over the Internet using Multimedia TCP-friendly protocol. Lennon facilitates access to multimedia content using metadata stored in the XML documents. Zhang explicitly does not teach use of XML, that allows information and services to be encoded with meaningful structure and semantics that computers and humans can understand. XML is great for information exchange, and can easily be extended to include user-specified and industry-specified tags and metadata. It would have been obvious to one having ordinary skill in the art at the time invention was made to implement an end-end framework for media streaming over the Internet taught by Zhang to incorporate the metadata and XML teachings of Lennon for efficiently using bandwidth.

9. As per claim 42, Zhang discloses a multimedia streaming client comprising:

a packet receiving unit which receives the multimedia data from a server connected to a network (232, fig 2, pages 3-4, paragraph #0044-#0046);

a buffer which stores the received multimedia data; a multimedia decoder which reproduces the data stored in the buffer (230, fig 2 and fig 9, pages 3-4, paragraph #0044-#0046); a bandwidth measuring unit which measures a network bandwidth by using the time interval when the multimedia data is received in the packet receiving unit and the size information of the data (230, fig 2 and fig 9, pages 3-4, paragraph #0044-#0061).

Zhang explicitly does not disclose a message transmission unit which transmits the measured network bandwidth to the server so that the transmission rate of the multimedia data transmitted from the server is adjusted to the network bandwidth. However Lennon discloses a message transmission unit which transmits the measured network bandwidth to the server so that the transmission rate of the multimedia data transmitted from the server is adjusted to the network bandwidth (modification bandwidth #0239). Zhang discloses in paragraph [0076] dynamic resource allocation for distributed multimedia systems that support application-level control. In the example illustrated in FIG. 2, dynamic network bandwidth estimations are made using the changing characteristics of Internet using the MSFTP protocol. It would have been obvious to one having ordinary skill in the art at the time invention was made to implement an end-end framework for media streaming over the Internet taught by ZHANG to incorporate the media browser server of Lennon for customizing the streaming of the content to the device by modifying bandwidth.

10. As per claim 53, the claim is rejected for the same reasons as claim 24, above. In addition, Zhang discloses (a) receiving an estimated bandwidth of the network from the client; (b) based on a descriptor obtained as a result of parsing metadata corresponding to multimedia data desired to be provided for service, selecting a current time segment (fig 9, pages 7-8, please see discussion Network Adaptive Rate Control Scheme), paragraph #0107-); (c) comparing a target bit rate defined in the descriptor for the

selected segment with the estimated network bandwidth (fig 9, pages 7-8, please see discussion Network Adaptive Rate Control Scheme).

11. As per claim 2, the claim is rejected for the same reasons as claim 1, above. In addition, Zhang discloses the multimedia streaming server comprises: a data storage unit which stores multimedia data desired to be provided for service and metadata related to the multimedia data (216, fig 2, page 3, paragraph #0044);

a metadata parsing unit which parses the metadata and outputs the parsing result in the form of a descriptor (214, fig 2, page 3, paragraph #0044);

a message receiving unit which receives the network bandwidth information from a client (212, fig 2, page 3, paragraph #0044);

a quality of service (QoS) processing unit which selects a QoS level available for service in response to the descriptor information and the network bandwidth information (214, fig 2, page 3, paragraph #0044), and extracts multimedia data corresponding to the selected QoS level (214, fig 2, page 3, paragraph #0044), from the data storage unit (216, 214 fig 2, page 3, paragraph #0044);

a buffer which stores the extracted data (pages 3-4, paragraph #0044-#0045);

a packet generation unit which packetizes the data stored in the buffer (pages 3-4, paragraph #0044-#0045); and

a packet transmission unit which transmits the data stored in the buffer to the client in each predetermined time interval (pages 3-4, paragraph #0044-#0045).

12. As per claim 3, the claim is rejected for the same reasons as claim 1, above. In addition, Zhang discloses the QoS processing unit comprises: a service level selection unit which compares a target bit rate for each QoS level (214, fig 2) with the bandwidth and selects a predetermined QoS level (214, fig 2, pages 3-4, paragraph #0044-#0061); and a frame selection unit which extracts frames corresponding to the QoS level (214, fig 2) from the multimedia data stored in the data storage unit (210, fig 2) and stores the extracted frames in the buffer (pages 3-4, paragraph #0044-#0061).

13. As per claim 4, the claim is rejected for the same reasons as claim 1, above. In addition, Zhang discloses the buffer comprises: a packet storage buffer which stores the packet 210, fig 2); and a packet transmission buffer which transmits the packet 210, fig 2).

14. As per claim 5, the claim is rejected for the same reasons as claim 1, above. In addition, Zhang discloses the multimedia data has any one form of audio data (210, fig 2), moving picture data, still picture data, text data, and graphic data (210, fig 2).

15. As per claim 6, the claim is rejected for the same reasons as claim 1, above. In addition, Zhang discloses the multimedia data is formed with a bit stream which has any one of a spatial scalable function, a quality scalable function, a temporal scalable function, and fine grain scalable (FGS) function (pages 4-7, paragraph #0047-#0113).

16. As per claims 7, 29, 50, and 56, Zhang fails to disclose the metadata is defined based on an extensible markup language (XML). However, Lennon discloses the metadata is defined based on an extensible markup language (XML) (page 4, paragraph #0066). Zhang discloses an implementation of an end-end framework for media streaming over the Internet using Multimedia TCP-friendly protocol. Lennon facilitates access to multimedia content using metadata stored in the XML documents. Zhang explicitly does not teach use of XML, that allows information and services to be encoded with meaningful structure and semantics that computers and humans can understand. XML is great for information exchange, and can easily be extended to include user-specified and industry-specified tags and metadata. It would have been obvious to one having ordinary skill in the art at the time invention was made to implement an end-end framework for media streaming over the Internet taught by ZHANG to incorporate the metadata and XML teachings of Lennon for efficiently using bandwidth.

17. As per claims 8, 30, 51, and 57, Zhang fails to disclose the metadata has a hierarchical structure in the form of a tree having the multimedia data and streaming-related information. However, Lennon discloses the metadata has a hierarchical structure in the form of a tree having the multimedia data and streaming-related information (pages 5-6, paragraph #0070-#0079). Zhang discloses an implementation of an end-end framework for media streaming over the Internet using Multimedia TCP-friendly protocol. Lennon facilitates access to multimedia content using metadata stored

in the XML documents. Zhang explicitly does not teach use of XML, that allows information and services to be encoded with meaningful structure and semantics that computers and humans can understand. XML is great for information exchange, and can easily be extended to include user-specified and industry-specified tags and metadata. It would have been obvious to one having ordinary skill in the art at the time invention was made to implement an end-end framework for media streaming over the Internet taught by ZHANG to incorporate the metadata and XML teachings of Lennon for efficiently using bandwidth.

18. As per claims 9 and 31, claims are rejected for the same reasons as claim 8, as above. In addition, Lennon discloses the metadata comprises: a STREAMING HINT node which specifies the control type of the metadata and the type of the hierarchical structure of a node (XML document provide hint to a processor, pages 5-6, paragraph #0073-#0079); a HEADER GROUP HINT node which is connected to the STREAMING HINT node as a subordinate node of the STREAMING HINT node and contains header information of the multimedia data (XML document provide hint to a processor, pages 5-6, paragraph #0073-#0079); at least one or more SEGMENT GROUP HINT nodes, each of which is connected to the STREAMING HINT node as a subordinate node of the STREAMING HINT node and contains segment information when the multimedia is divided into segments of a predetermined time interval (XML document provide hint to a processor, pages 5-6, paragraph #0073-#0079); at least one or more FRAME HEADER HINT nodes, each of which is connected to the HEADER GROUP HINT node as a subordinate node of the HEADER GROUP HINT node, and contains an attribute value

indicating unique information of each node (XML document provide hint to a processor, pages 5-6 and 7, paragraph #0073-#0079); at least one or more MEDIA SEGMENT HINT nodes, each of which is connected to the SEGMENT GROUP HINT node as a subordinate node of the SEGMENT GROUP HINT node, and contains attribute information on each Quos level (XML document provide hint to a processor, pages 5-6 and 7, paragraph #0073-#0079); and at least one or more MEDIA FRAME HINT nodes, each of which is connected to the MEDIA SEGMENT HINT node as a subordinate node of the MEDIA SEGMENT HINT node and contains multimedia frame information to be actually transmitted (XML document provide hint to a processor, pages 5-6 and 7, paragraph #0073-#0079).

19. As per claims 10 and 32, claims are rejected for the same reasons as claim 9, as above. In addition, Lennon discloses the STREAMING HINT node comprises: a target bit rate adjuster which adjusts a transmission bit rate to the change of the network bandwidth (XML document provide hint to a processor, pages 5-6 and 7, paragraph #0073-#0079); a target quality adjuster which adjusts QoS of multimedia data to be provided for service; a target complexity adjuster which supports differentiated services according to resource complexity of the client (XML document provide hint to a processor, pages 5-6 and 7, paragraph #0073-#0079); a target profile adjuster which supports differentiated services according to the compression format of the multimedia data (XML document, pages 5-6 and 7, paragraph #0073-#0079); a target speed adjuster which adjusts a service speed according to a reproduction speed adjusting

request from the client (metadata, pages 5-6 and 7, paragraph #0073-#0079); a target direction adjuster which adjusts a service direction according to a reproduction direction adjusting request from the client (XML document provide hint to a processor, pages 5-6 and 7, paragraph #0073-#0079); and a target device adjuster which supports differentiated services according to the type of the client terminal (XML document provide hint to a processor, pages 5-6 and 7, paragraph #0073-#0079).

20. As per claims 11 and 33, claims are rejected for the same reasons as claim 9, as above. In addition, Lennon discloses a stream identifier which distinguishes each multimedia stream when a plurality of multimedia objects are provided at the same time for service (XML document provide hint to a processor, pages 5-6 and 7, paragraph #0073-#0079); a stream type identifier which distinguishes the type of the multimedia data (XML document provide hint to a processor, pages 5-6 and 7, paragraph #0073-#0079); a scalable function identifier which distinguishes the type of a scalable function for the multimedia data (XML document provide hint to a processor, pages 5-6 and 7, paragraph #0073-#0079); a source location identifier which indicates location information of the multimedia data stored in the data storage unit (XML document provide hint to a processor, pages 5-6 and 7, paragraph #0073-#0079); a frame rate identifier which indicates the frame rate of the multimedia data; and an average bit rate identifier which indicates the average bit rate of the multimedia data (XML document provide hint to a processor, pages 5-6 and 7, paragraph #0073-#0079).

21. As per claim 12, the claim is rejected for the same reasons as claim 9, as above. In addition, Lennon discloses the HEADER GROUP HINT node contains the same number of FRAME HEADER HINT nodes as the number of multimedia objects to be provided for service (XML document provide hint to a processor, pages 5-6 and 7, paragraph #0073-#0079).

22. As per claims 13 and 35, claims are rejected for the same reasons as claim 9, as above. In addition, Lennon discloses the SEGMENT GROUP HINT node contains the same number of the MEDIA SEGMENT HINT nodes as the number of the QoS levels (XML document provide hint to a processor, pages 5-6 and 7, paragraph #0073-#0079, page 20, paragraph 217).

23. As per claims 14, 34, and 36, claims are rejected for the same reasons as claim 9, as above. In addition, Lennon discloses the MEDIA SEGMENT HINT node contains the same number of MEDIA FRAME HINT nodes as the number of entire frames to be provided for service at each QoS level (XML document provide hint to a processor, pages 5-6 and 7, paragraph #0073-#0079).

24. As per claims 15 and 37, claims are rejected for the same reasons as claim 9, as above. In addition, Lennon discloses the MEDIA FRAME HINT node comprises: a stream identifier which distinguishes each multimedia stream when a plurality of multimedia objects are provided at the same time for service (XML document provide

hint to a processor, pages 5-6 and 7, paragraph #0073-#0079); a decoding/reproduction time identifier which indicates decoding time information and reproduction (page 15, paragraph #017) time information of a frame (XML document provide hint to a processor, pages 5-6 and 7, paragraph #0073-#0079); a coding type identifier which distinguishes frames into I frames, P frames, and B frames according to a method a frame is referred to when the frame is encoded (XML document provide hint to a processor, pages 5-8, paragraph #0073-#0094); a frame offset identifier which indicates location information of each frame of the multimedia data stored in the data storage unit(XML document provide hint to a processor, pages 5-8, paragraph #0073-#0094) ; a frame length identifier which indicates the size of a corresponding frame(XML document provide hint to a processor, pages 5-8, paragraph #0073-#0094); and a frame number identifier which indicates the number of a corresponding frame (XML document provide hint to a processor, pages 5-8, paragraph #0073-#0094).

25. As per claims 16 and 38, claims are rejected for the same reasons as claim 9, as above. In addition, Lennon discloses the metadata is broken down into independent-type metadata and dependent-type metadata according to an attribute of the MEDIA SEGMENT HINT node (XML document provide hint to a processor, page 5, paragraph #0073).

26. As per claims 17 and 39, claims are rejected for the same reasons as claim 17, as above. In addition, Lennon discloses each node of the independent-type metadata

contains frame information of multimedia data corresponding to a service level without reference to an upper node or reuse (XML document provide hint to a processor, pages 5-8, paragraph #0073-#0094).

27. As per claims 18 and 40, claims are rejected for the same reasons as claim 9, as above. In addition, Lennon discloses each node of the dependent-type metadata refers to an upper node for information shared at a plurality of QoS levels and specifies only additional information in a lower node (XML document provide hint to a processor, pages 5-6 and 7, paragraph #0073-#0079, page 20, paragraph 217).

28. As per claim 19, Zhang Discloses if the number of the QoS levels increases, the frame drop rate of the multimedia streaming server gradually decreases and the average bit rate and average peak signal to noise ratio (PSNR) value gradually increase (page 9, paragraph #0131).

29. As per claim 20, the claim is rejected for the same reasons as claim 1, above. In addition, Zhang discloses a packet receiving unit which receives the multimedia data from the server (232, fig 2, pages 3-4, paragraph #0045-#0046);

a buffer which stores the received multimedia data; a multimedia decoder which reproduces the data stored in the buffer (230, fig 2);

a bandwidth measuring unit which measures a network bandwidth by using the time when the multimedia data is received in the packet receiving unit and the size

information of the data (232, fig 2, pages 3-4, paragraph #0045-#0062); and a message transmission unit which transmits the measured network bandwidth to the server so that the transmission rate of the multimedia data transmitted from the server is adjusted to the network bandwidth (210, fig 2, pages 3-4, paragraph #0044-#0062).

30. As per claims 21 and 43, the claim is rejected for the same reasons as claim 1, above. In addition, Zhang discloses the packet receiving unit distinguishes the first packet and the last packet of each packet group by referring to the packet number of the received multimedia data (210, fig 2, pages 3-4, paragraph #0045-#0049).

31. As per claim 22 and 44, the claim is rejected for the same reasons as claim 1, above. In addition, Zhang discloses assuming that a time when the first packet is received is t1, a time when the last packet is received is t2, and the size of the packet group data is Sp, the network bandwidth is obtained by the following equation:

E BW (Bandwidth) = S p X 8 X 1000/ t 2 - t 1 (page 6, paragraph, #0093-#0096).

32. As per claims 23 and 45, the claim is rejected for the same reasons as claim 1, above. In addition, Zhang discloses wherein the bandwidth measuring unit feeds the network bandwidth information back to the server through the message transmission unit whenever the network bandwidth varies (page 5, paragraph, #0066-#0072).

33. As per claim 25, the claim is rejected for the same reasons as claim 24, above. In addition Zhang discloses the QoS processing unit comprises: a service level selection unit which compares a target bit rate for each QoS level with the bandwidth and selects a predetermined QoS level (214, fig 2, pages 3-4, paragraph #0044-#0045); and a frame selection unit which extracts frames corresponding to the QoS level from the multimedia data stored in the data storage unit and stores the extracted frames in the buffer 214, fig 2, pages 3-4, paragraph #0044-#0045).

34. As per claim 26, the claim is rejected for the same reasons as claim 24, above. In addition Zhang discloses the buffer comprises: a packet storage buffer which stores the packet data generated by the packet generation unit 210, fig 2, pages 3-4, paragraph #0044-#0045); and a packet transmission buffer which transmits the packet data (210, fig 2, pages 3-4, paragraph #0044-#0045).

35. As per claims 27 and 54, claims are rejected for the same reasons as claim 24, above. In addition Zhang discloses wherein the multimedia data has any one form of audio data, moving picture data, still picture data, text data, and graphic data (210, fig 2, pages 3-4, paragraph #0044-#0045).

36. As per claims 28 and 55, claims are rejected for the same reasons as claim 24, above. In addition Zhang discloses the multimedia data is formed with a bit stream which has any one of a spatial scalable function, a quality scalable function, a temporal

scalable function, and fine grain scalable (FGS) function (pages 4-7, paragraph #0047-#0113).

37. As per claims 41, 52, and 58, claims are rejected for the same reasons as claim 24, above. In addition, Zhang discloses if the number of the QoS levels increases, the frame drop rate of the multimedia streaming server gradually decreases and the average bit rate and average peak signal to noise ratio (PSNR) value gradually increase (page 9, paragraph #0131).

38. As per claim 47, the claim is rejected for the same reasons as claim 46, above. In addition, Zhang discloses wherein the step (e) comprises: (e-1) setting the size value of an accumulated packet to 0 (fig 9, pages 7-9, please see the discussion of Network Adaptive Rate Control);

(e-2) starting to receive a packet from the server; (e-3) setting the time when a first packet is received as T1 (fig 9, pages 7-9, please see the discussion of Network Adaptive Rate Control);

(e-4) after the first packet is input till a last packet is input, whenever a packet is input, accumulating the size value of the packet to the size of the accumulated packet (fig 9, pages 7-9, please see the discussion of Network Adaptive Rate Control);

(e-5) if the last packet is input, setting the time when the last packet is input as TS2 (fig 9, pages 7-9, please see the discussion of Network Adaptive Rate Control);

(e-6) measuring the network bandwidth by calculating:

Accumulated packet size .times. 1000 .times. 8 TS2 - TS1 (fig 9, pages 7-9, please see the discussion of Network Adaptive Rate Control);
(e-7) feeding the measured network bandwidth information back to the server (fig 9, pages 7-9, please see the discussion of Network Adaptive Rate Control).

39. As per claim 48, the claim is rejected for the same reasons as claim 46, above. In addition. Zhang discloses the multimedia data has any one form of audio data, moving picture data, still picture data, text data, and graphic data (210,230, fig 2, page 3, paragraph #0042).

40. As per claim 49, the claim is rejected for the same reasons as claim 46, above. In addition. Zhang discloses the multimedia data is formed with a bit stream which has any one of a spatial scalable function, a quality scalable function, a temporal scalable function, and fine grain scalable (FGS) function (pages 4-7, paragraph #0047-#0113).

41. As per claim 59, the claim is rejected for the same reasons as claim 42, above. In addition Zhang discloses a network bandwidth measuring method of a client which receives multimedia data from a server through a network, the method comprising: (a) setting the size value of an accumulated packet to 0 (fig 9, pages 7-9, please see the discussion of Network Adaptive Rate Control); (b) starting to receive a packet from the server (fig 9, pages 7-9, please see the discussion of Network Adaptive Rate Control); (c) setting the time when a first packet is received as TS1 (fig 9, pages 7-9, please see

the discussion of Network Adaptive Rate Control); (d) after the first packet is input until a last packet is input, whenever a packet is input, accumulating the size value of the packet to the size of the accumulated packet(fig 9, pages 7-9, please see the discussion of Network Adaptive Rate Control); (e) if the last packet is input, setting the time when the last packet is input as T2 (fig 9, pages 7-9, please see the discussion of Network Adaptive Rate Control); (f) measuring the network bandwidth by calculating (fig 9, pages 7-9, please see the discussion of Network Adaptive Rate Control):

Accumulated packet size. times. 1000 .times. 8 TS2 - TS1;

(g) feeding the measured network bandwidth information back to the server (fig 9, page 8, paragraph #0128).

42. As per claims 60 and 61, claims are rejected for the same reasons as claim 46, above. In addition, Zhang discloses a computer readable medium having (page 9, paragraph #0138).

43. As per claim 62, Zhang discloses a computer readable medium having embodied thereon a computer program for performing the method of claim 59 (page 9, paragraph #0138).

Response to Arguments

44. Applicant's arguments with respect to claims 1-62 have been considered but are moot in view of the new ground(s) of rejection.

Conclusion

45. Any inquiry concerning this communication or earlier communications from the examiner should be directed to MOHAMMAD A. SIDDIQI whose telephone number is (571)272-3976. The examiner can normally be reached on Monday -Thursday.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Nathan J. Flynn can be reached on (571) 272-1915. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

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/Nathan J. Flynn/
Supervisory Patent Examiner, Art Unit 2154